REMARKS/ARGUMENTS

Claims 1-10, 12-18 and 20-25 are pending, claims 3, 12 and 20 having been withdrawn from consideration. By this Amendment, the specification is amended, claims 11 and 19 are cancelled without prejudice or disclaimer, claims 1-10, 12-18 and 20 are amended, and new claims 21-25 are presented. Support for the amendments to claims 1-10, 12-18 and 20 and new claim 21 can be found, for example, in the present specification at page 3, line 13 to page 5, line 16 and page 12, lines 3 to 18, and in previously presented claims 1-20. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Personal Interview

Applicants appreciate the courtesies extended to Applicants' representative by Examiner Padgett during the December 30, 2009 Personal Interview. Applicants' separate record of the substance of the interview is incorporated in the following remarks.

Withdrawn Claims

For the reasons set forth below, Applicants submit that the species presently subject to examination are allowable. Rejoinder and examination of the non-elected species is, thus, appropriate.

Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 1, 2, 4-10 and 13-18 as indefinite under 35 U.S.C. §112, second paragraph. By this Amendment, claims 1, 2, 4-10 and 13-18 are amended to obviate the rejection. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Objection to the Claims

The Office Action objects to claims 10 and 18. By this Amendment, claims 10 and 18 are amended to obviate the objection. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Objection to the Specification

The Office Action objects to the specification. By this Amendment, the specification is amended to obviate the objection. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Rejection Under 35 U.S.C. §112, First Paragraph

The Office Action rejects claims 1, 2, 4-10 and 13-18 under the enablement requirement of 35 U.S.C. §112, first paragraph. Applicants respectfully traverse the rejection.

While Applicants do not necessarily agree with the rejection, and reserve the right to pursue broader claims in a later application, by this Amendment, claims 1, 2, 4-10 and 13-18 have been amended to recite processes that are more clearly enabled by the specification as filed. Applicants note, in particular, that the "material" of the previous claims has been limited to a catalytic material suitable for catalyzing formation of carbon nanotubes or nanofibers. *See* present specification, page 1, line 3 to page 2, line 7. The substrate has been defined in terms of its surface tension in comparison to that of the catalytic material. *See* present specification, page 3, line 30 to page 4, line 2. In addition, deposition "in a discontinuous manner" has been further defined as forming multiple separate layers of the catalytic material over a period of time. *See* present specification, page 3, lines 23 to 27.

Applicants submit that the foregoing refinements, as well as the other refinements set forth in the claim listing above, bring the claims even more clearly within the scope of subject matter enabled by the specification as filed.

For the foregoing reasons, claims 1, 2, 4-10 and 13-18 are fully enabled by the specification as filed. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejections Under 35 U.S.C. §102

A. Candles

The Office Action rejects claims 1, 2, 7 and 10 under 35 U.S.C. §102(b) over commonly known methods of making candles. Applicants respectfully traverse the rejection.

Claim 1 requires formation of a layer of a material that is suitable for catalyzing formation of carbon nanotubes or carbon nanofibers. Candle making does not involve formation of such a layer. Commonly known methods of making candles do not disclose or suggest each and every feature of claim 1.

As explained, claim 1 is not anticipated by commonly known methods of making candles. Claims 2, 7 and 10 depend from claim 1 and, thus, also are not anticipated by commonly known methods of making candles. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Raaijmakers

The Office Action rejects claims 1, 2, 7, 10, 13-15 and 18 under 35 U.S.C. §102(b) over U.S. Patent Application Publication No. US 2003/0234417 to Raaijmakers et al. ("Raaijmakers"). Applicants respectfully traverse the rejection.

Raaijimakers involves formation of a discontinuous layer of a dielectric material. *See, e.g.,* Raaijimakers, paragraph [0032]. Raaijimakers does not disclose or suggest separating a layer of a catalytic material formed on a substrate into droplet-shaped bodies of the catalytic material adhered to the substrate. Raaijimakers does not disclose or suggest each and every feature of claims 1 and 13.

As explained, claims 1 and 13 are not anticipated by Raaijmakers. Claims 2, 7, 10, 14, 15 and 18 depend variously from claims 1 and 13 and, thus, also are not anticipated by Raaijmakers. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Lee

The Office Action rejects claims 1, 2, 4, 6, 8-10, 13, 14 and 16-18 under 35 U.S.C. §102(b) over WO 03/027011 to Lee ("Lee 011"). Applicants respectfully traverse the rejection.

In Lee 011, catalyst dots are deposited on a substrate. *See* Lee 011, page 8, lines 28 to 30. However, Lee 011 does not disclose a sequence of steps in which multiple separate layers of a catalytic material are formed on a substrate over a period of time, and then the resulting catalytic material superlayer is separated into droplet-shaped bodies, e.g., by the application of heat. Accordingly, Lee 011 does not disclose or suggest each and every feature of claims 1 and 13.

As explained, claims 1 and 13 are not anticipated by Lee 011. Claims 2, 4, 6, 8-10, 14 and 16-18 depend variously from claims 1 and 13 and, thus, also are not anticipated by Lee 011. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

D. Merkulov

The Office Action rejects claims 1, 2, 4, 6, 8-10, 13, 14 and 16-18 under 35 U.S.C. §102(b) over U.S. Patent Application Publication No. US 2002/0117951 to Merkulov et al. ("Merkulov"). Applicants respectfully traverse the rejection.

In Merkulov, catalyst nanoparticles are formed on a substrate by lithography. *See* Merkulov, paragraph [0026]. Merkulov does not disclose a method in which multiple separate layers of a catalytic material are formed on a substrate over a period of time. Merkulov also does not disclose separating the resulting catalytic material superlayer into droplet-shaped bodies – in Merkulov material is removed by developing a resist. Accordingly, Merkulov does not disclose or suggest each and every feature of claims 1 and 13.

As explained, claims 1 and 13 are not anticipated by Merkulov. Claims 2, 4, 6, 8-10, 14 and 16-18 depend variously from claims 1 and 13 and, thus, also are not anticipated by Merkulov. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

E. Dominguez

The Office Action rejects claims 1, 2 and 6-10 under 35 U.S.C. §102(e) over U.S. Patent Application Publication No. US 2007/0196575 to Dominguez et al. ("Dominguez"). Applicants respectfully traverse the rejection.

The effective U.S. filing date of the present application is February 7, 2005 (the International filing date of PCT/FR05/50073, of which the present application is the U.S. national stage). The effective U.S. filing date is before both the publication and filing dates of Dominguez. Dominguez, thus, is not available as prior art against the present application under 35 U.S.C. §102(a), (b) or (e).

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejections Under 35 U.S.C. §103

A. Lee 011 and Lee 041

The Office Action rejects claim 5 under 35 U.S.C. §103(a) over Lee 011 in view of EP 1 061 041 to Lee et al. ("Lee 041"). Applicants respectfully traverse the rejection.

For the reasons discussed above, Lee 011 does not disclose or suggest each and every feature of claim 1. Lee 041 does not remedy the deficiencies of Lee 011. Lee 041 is cited for its alleged disclosure of TiN barrier layer. *See* Office Action, page 14. However, Lee 041, like Lee 011, does not disclose a method in which multiple separate layers of a catalytic material are formed on a substrate over a period of time. Lee 041 also does not disclose separating the resulting catalytic material superlayer into droplet-shaped bodies – in Lee 041 material is removed by etching. Accordingly the combination of references fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 would not have been rendered obvious by Lee 011 and Lee 041. Claim 5 depends from claim 1 and, thus, also would not have been rendered obvious by Lee 011 and Lee 041. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Merkulov and Lee 041

The Office Action rejects claim 5 under 35 U.S.C. §103(a) over Merkulov in view of Lee 041. Applicants respectfully traverse the rejection.

For the reasons discussed above, Merkulov does not disclose or suggest each and every feature of claim 1. Merkulov does not remedy the deficiencies of Lee 011. Lee 041 is

cited for its alleged disclosure of TiN barrier layer. *See* Office Action, page 14. However, Lee 041, like Merkulov, does not disclose a method in which multiple separate layers of a catalytic material are formed on a substrate over a period of time. Lee 041 also does not disclose separating the resulting catalytic material superlayer into droplet-shaped bodies – in Lee 041 material is removed by etching. Accordingly the combination of references fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 would not have been rendered obvious by Merkulov and Lee 041. Claim 5 depends from claim 1 and, thus, also would not have been rendered obvious by Merkulov and Lee 041. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Lee 011 and Choi

The Office Action rejects claims 7 and 15 under 35 U.S.C. §103(a) over Lee 011 in view of U.S. Patent No. 6,538,367 to Choi et al. ("Choi"). Applicants respectfully traverse the rejection.

For the reasons discussed above, Lee 011 does not disclose or suggest each and every feature of claims 1 and 13. Choi does not remedy the deficiencies of Lee 011. Choi is cited for its alleged disclosure of forming catalyst particles on a substrate under partial pressure of oxygen. *See* Office Action, pages 15 to 16. However, Choi, like Lee 011 fails to disclose or suggest a sequence of steps in which multiple separate layers of a catalytic material are formed on a substrate over a period of time, and then the resulting catalytic material superlayer is separated into droplet-shaped bodies, e.g., by the application of heat. Accordingly the combination of references fails to disclose or suggest each and every feature of claims 1 and 13.

As explained, claims 1 and 13 would not have been rendered obvious by Lee 011 and Choi 041. Claims 7 and 15 depend from claims 1 and 13, respectively, and, thus, also would not have been rendered obvious by Lee 011 and Choi. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

D. Merkulov and Choi

The Office Action rejects claims 7 and 15 under 35 U.S.C. §103(a) over Merkulov in view of Choi. Applicants respectfully traverse the rejection.

For the reasons discussed above, Merkulov does not disclose or suggest each and every feature of claims 1 and 13. Choi does not remedy the deficiencies of Merkulov. Choi is cited for its alleged disclosure of forming catalyst particles on a substrate under partial pressure of oxygen. *See* Office Action, pages 15 to 16. However, Choi, like Merkulov fails to disclose or suggest a sequence of steps in which multiple separate layers of a catalytic material are formed on a substrate over a period of time, and then the resulting catalytic material superlayer is separated into droplet-shaped bodies, e.g., by the application of heat. Accordingly the combination of references fails to disclose or suggest each and every feature of claims 1 and 13.

As explained, claims 1 and 13 would not have been rendered obvious by Merkulov and Choi 041. Claims 7 and 15 depend from claims 1 and 13, respectively, and, thus, also would not have been rendered obvious by Merkulov and Choi. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Double Patenting

A. 284 Application

The Office Action provisionally rejects claims 1, 2, 4-10 and 13-18 under the judicially created doctrine of obviousness-type double patenting over claims 14-25 of U.S. Patent Application No. 10/546,284 in view of Lee 011 or Gao, J.S., et al., "Plasma breaking of thin films into nano-sized catalysts for carbon nanotube synthesis," Materials Science and Engineering A352 (2003) 308-313 ("Gao"). Applicants submit that it may be appropriate to withdraw the provisional rejection when the present application is otherwise in condition for allowance, pursuant to MPEP §§ 804, 822.01. When a determination is made as to whether the provisional rejection is to be withdrawn, Applicants will file a Terminal Disclaimer or take other appropriate action, if necessary.

B. 547 Patent

The Office Action rejects claims 1, 2, 4-10 and 13-18 under the judicially created doctrine of obviousness-type double patenting over claims 1-21 of U.S. Patent No. 7,544,547 in view of Lee 011, Gao and/or Lee 041. Applicants respectfully traverse the rejection.

As discussed above, claims 1 and 13 require a sequence of steps in which multiple separate layers of a catalytic material are formed on a substrate over a period of time, and then the resulting catalytic material superlayer is separated into droplet-shaped bodies, e.g., by the application of heat. The claims of the 547 patent do not recite or suggest, e.g., forming multiple separate layers of a catalytic material over a period of time. For the reasons discussed above, Lee 011 and Lee 041 do not disclose or suggest forming multiple separate layers of a catalytic material over a period of time. Gao also does not disclose or suggest forming multiple separate layers of a catalytic material over a period of time. Accordingly,

the claims of the 547 patent do not recite or suggest each and every feature of claims 1 and 13.

Claims 1 and 13 are not obvious over the claims of the 547 patent in view of Lee 011, Gao and/or Lee 041. Claims 2, 4-10 and 14-18 depend variously from claims 1 and 13 and, thus, also are not obvious over the claims of the 547 patent in view of Lee 011, Gao and/or Lee 041. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. 238 Application

The Office Action provisionally rejects claims 1, 2, 4-10 and 13-18 under the judicially created doctrine of obviousness-type double patenting over claims 25-42 of U.S. Patent Application No. 11/915,238 in view of Lee 011, Gao and/or Lee 041. Applicants submit that it may be appropriate to withdraw the provisional rejection when the present application is otherwise in condition for allowance, pursuant to MPEP §§ 804, 822.01. When a determination is made as to whether the provisional rejection is to be withdrawn, Applicants will file a Terminal Disclaimer or take other appropriate action, if necessary.

Rejections Under 35 U.S.C. §102/§103

The Office Action rejects claims 1, 2, 6-8 and 10 under 35 U.S.C. §102(e), or in the alternative under 35 U.S.C. §103(a), over U.S. Patent Application Publication No. US 2005/0000318 to Keller et al. ("Keller"). Applicants respectfully traverse the rejection.

Keller discloses a method in which a layer of a composition including a metallic compound and an organic compound is deposited on a substrate and then the organic compound is driven off to leave nanoparticles. *See, e.g.,* Keller, Abstract, paragraph [0071]. In Keller, the composition that is deposited is different from the composition of the resulting

nanoparticles, because the organic compound is driven off. Keller does not disclose forming a layer of a catalytic material and separating the layer into droplet-shaped bodies of the catalytic material. Accordingly, Keller does not disclose or suggest each and every feature of claim 1.

As explained, claim 1 is not anticipated by and would not have been rendered obvious by Keller. Claims 2, 6-8 and 10 depend from claim 1 and, thus, also are not anticipated by and would not have been rendered obvious by Keller. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

New Claims

By this Amendment, new claim 21 is presented. New claim 21 corresponds in scope to claim 1, except that new claim 21 provides that "the substrate comprises a material that does not react with the catalytic material." Accordingly, new claim 21 is believed to be patentable for at least the reasons discussed above with respect to claim 1.

By this Amendment, new claims 22-25 are presented. New claims 22-25 depend variously from claims 1, 13 and 21 and, thus, are believed to be patentable for at least the reasons discussed above with respect to claims 1, 13 and 21.

Conclusion

For the foregoing reasons, Applicants submit that claims 1-10, 12-18 and 20-25 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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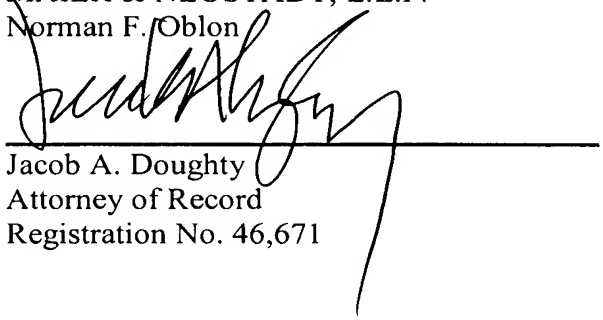
Norman F. Oblon



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Substitute Abstract